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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/297,382	04/30/1999	VINCENT LETELLIER	Q53893	9694

7590 02/22/2002

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EXAMINER

TRAN, DZUNG D

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 02/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/297,382

Applicant(s)

LETELLIER ET AL.

D2

Examiner

Dzung D Tran

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 1999.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1, 2, 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Spencer, International publication no. WO 97/23965

In considering claims 1 and 5, Spencer in figure 1 clearly discloses an amplified and non-bi-directional fiber optic link (figure 1, elements 12, 14 and page 5, lines 21-22) including optical loopback (figure 1, elements 30) of the amplifiers (figure 1, elements 16, 18, 24, 26 and page 6, line 1) to enable COTDR (page 6, line 9), characterized by different wavelengths in the two transmission directions (page 7, lines 18-19).

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In considering claims 2 and 6, Spencer further discloses a link characterized in that the wavelengths in the two transmission directions are chosen so that the backscattered signal originating from the signal in one transmission direction is strongly attenuated on passing through the receive filter of a channel in the other transmission direction (page 6, lines 10-17).

3. Claims 9, 10, 13, 16, 17 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohta et al. U.S. patent no. 5,737,105.

In considering claims 9 and 16, Ohta in figure 10 clearly discloses an amplified and non-bi-directional fiber optic link (figure 10, elements 3, 4 and column 1, lines 45-46) including optical loopback (figure 10, elements 10, 11) of the amplifiers (figure 10, elements 6, 7 and column 1, lines 47-48) to enable COTDR (column 2, lines 7-10), characterized for widening the spectrum of the signal in at least one transmission direction (column 9, lines 27-47).

In considering claims 10 and 17, Ohta further discloses a wavelength modulator (figure 8, element 73 and column 9, line 29).

In considering claims 13 and 20, Ohta further discloses modulator (figure 8, element 73) for modulating the injection current of a laser (figure 8, element 72) of a sender of at least one transmission direction.

Claim Rejections - 35 USC § 103

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4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gautheron O. et al. IEEE photonics technology letters, vol. 9, no. 7, July 1997 in view of Horuichi et al. U.S. patent no. 5,790,294.

Gautheron in figure 1 clearly discloses an amplified and non-bi-directional fiber optic link including optical loopback of the amplifiers to enable COTD. Gautheron differs from claims 1 and 5 of the present invention in that Gautheron does not disclose different wavelengths in the two transmission directions. Horuichi teaches the line monitoring of an optical transmission system, which has a different wavelength in the two transmission directions (column 5 line 64 to column 6 line 13). It would have been obvious to an artisan at the time of the invention was made to include teaches the line monitoring of an optical transmission system which has a different wavelength in the two transmission directions in the system of Gautheron in order monitor the state of the transmission path.

6. Claims 4, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spencer, International publication no. WO 97/23965 in view of Ohta et al. U.S. patent no. 5,737,105.

As per claims above, Spencer discloses all the limitations except for a link characterized by sending a wavelength division multiplexer in each transmission direction, the wavelengths of the multiplex in one transmission direction being interleaved between the wavelengths of the multiplex in the other transmission direction. Ohta discloses a link sending a wavelength division multiplexer (figure 8, element 71 and column 9, lines 26-28) in each transmission direction, the wavelengths of the multiplex in one transmission direction being interleaved (figure 8, element 77 and column 9, lines 36-37) between the wavelengths of the multiplex in the other transmission direction. Since multiplexer and demultiplexer are well known in the art for multiplex the optical signals at one end, transmits optical signals through a single fiber and then demultiplex optical signals at the other end, it would have been obvious to an artisan at the time of the invention was made to include the multiplexer and the demultiplexer of Ohta in the system of Spencer in order to save cost.

7. Claims 3, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spencer, International publication no. WO 97/23965 in view of Fleuren U.S. patent no. 5,570,217

As per claims above, Spencer discloses all the limitations except for the wavelengths in the two transmission directions are chosen so that the backscattered signal originating from the signal in one transmission direction is attenuated by a factor of at least 10 on passing through the receive filter of a channel in the other transmission direction. Fleuren prefers the reductions of the backscattered signal to approximately 10% of its initial power (column 6, lines 13-16). It would have been obvious to an artisan

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at the time of the invention was made to include the suggestion of Fleuren in the system of Spencer in order to limit the penalties arising from interaction with the backscattered signal.

8. Claims 11 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta et al. U.S. patent no. 5,737, in view of Wong et al. U.S. patent no. 5,062,703.

As per claims above, Ohta discloses all the limitations except for the effect wavelength modulation with a modulation rate in the range from 0.5 kHz to 10 GHz, preferably in the range from 1 kHz to 5 GHz. Wong discloses a modulation bandwidth of lightwave source is 3 GHz. It would have been obvious to an artisan at the time of the invention was made to include modulation bandwidth of lightwave source of Wong the system of Ohta in order to obtain a good transmission.

9. Claims 12, 14, 15, 19, 21, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta et al. U.S. patent no. 5,737, in view of Eskildsen et al. U.S. patent no. 5,959,750.

In considering claims 12, 15, 19 and 22, as per claims above, Ohta discloses all the limitations except for the wavelength over a range greater than a few times the bit rate of the link. Eskildsen discloses a modulator rate is 10Gb/s (figure 3, elements 68a, 68b, 68c, 68d) and the bit rate of the link is 2.5Gb/s. It would have been obvious to an artisan at the time of the invention was made to replace a link of Eskildsen in the system of Ohta in order to obtain a good transmission.

In considering claims 14 and 21, Eskildsen further discloses the phase modulation (column 5, lines 7-10).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Spencer et al. U.S. patent no. 6,046,797. Optical time domain reflectometer and method.


b. Lynch et al. U.S. patent no. 5,926,263. Side tone OTDR for in-service optical cable monitoring.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung Tran whose telephone number is (703) 305-0932.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, Jason Chan, can be reached on (703) 305-4729.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.


LESLIE PASCAL
PRIMARY EXAMINER